

Application No : 09/932,677
By: D. F Weaver, et al.

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REMARKS

The amendments herein are consistent with the agreement reached during the Examiner's Interview on February 11, 2003, between Examiner Rao and the representatives of Applicants, namely the undersigned Theodore R. West and Elizabeth A. Hanley, Esq. Accordingly, upon entry of the amendments presented herein, the claims are believed to be allowable.

Claims 68-142 are pending in the instant application; claims 68-69, 78, 80, 92-93, 118-119, and 138-142 stand rejected, and claims 70-77, 79, 81-91, 94-117, and 120-137 stand withdrawn. Cancellation of claims 69-137 and 139-141, as well as amendment of claims 68, 138, and 142 are requested herein. Also, new claims 142-186 are presented for entry. Therefore, upon entry of the present amendment, claims 68, 139, and 142-186 will be pending.

Claims 68, 138, and 142 have been amended to more distinctly claim the invention pursuant to the agreement reached with Examiner Rao during the aforementioned Interview.

Support for the claim amendments may be found throughout the specification and claims as originally filed. In their previous Amendment and Response, dated September 9, 2002, Applicants demonstrated the written support for the claims presented therein. Many of the claims of the present Amendment and Response are substantively identical to those now-cancelled claims. Nevertheless, the written support explanation for those claims also applies to the corresponding claims herein. For example, claim 139 corresponds to new claim 144, claim 78 to new claim 149, claim 80 to new claim 150, claims 140-141 to new claims 154-161, and claims 118-119 to new claims 163-186. Applicants' prior Remarks regarding the written support respecting the now-cancelled claims are reiterated herein with respect to the corresponding new claims. A more detailed exposition of the written support for all of the claims that will be pending upon entry of the present amendment is also presented below.

No new matter has been added by the present Amendment. Attached hereto as an Appendix, captioned *Version with markings to show changes made*, is a marked-up version of the amended claims showing additions and deletions. Amendment of the claims should in no way be construed as an acquiescence to any of the rejections/objections set forth in the outstanding Office Action, or in any previous Office Action; and the instant Amendment is presented solely to expedite prosecution of this patent application. Furthermore, the amendments made to the claims are not related to any issues of patentability. Applicants reserve the option to prosecute the same or similar claims as those originally filed in the instant application in or one or more or subsequent applications.

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***Written Support in Specification as Filed for
Pending Claims, as Amended Herein***

The independent claims 68, 138 and 142, as amended herein, relate to methods of inhibiting or treating epileptogenesis or a convulsive condition using β -amino anionic compounds (§§1, 3, and 6 of *Summary of Invention*, respectively; emphasis added):

This invention relates to methods and compounds useful for the treatment and/or prevention of convulsive disorders, including epilepsy.

In another aspect, the invention provides a method for inhibiting epileptogenesis in a subject. . . . In preferred embodiments, the anti-epileptogenic agent is a β -amino anionic compound, in which an anionic moiety is selected from the group consisting of carboxylate, sulfate, sulfonate, sulfinatate, sulfamate, tetrazolyl, phosphate, phosphonate, phosphinate, and phosphorothioate. In certain embodiments, the agent is a β -amino acid, but is preferably not β -alanine.

In another aspect, the invention provides a method for inhibiting a convulsive disorder in a subject. The method includes the step of administering to a subject in need thereof an effective amount of a β -amino anionic compound such that the convulsive disorder is inhibited

Independent claims 68, 138, and 142 are directed to methods of inhibiting epileptogenesis and methods of treating a convulsive disorder with a substituted β -amino anionic compound. In the embodiment of the invention that is the subject of the present claims, the term " β -amino anionic compound" is defined as comprising an amino group, an anionic group, and a two-carbon spacer unit, as described in the application as filed at §10 of the *Detailed Description of the Invention*:

An "anionic group," as used herein, refers to a group that is negatively charged at physiological pH. Preferred anionic groups include carboxylate, sulfate, sulfonate, sulfinatate, sulfamate, tetrazolyl, phosphate, phosphonate, phosphinate,

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or phosphorothioate or functional equivalents thereof. . . . A particularly preferred anionic group is a carboxylate.

The term " β -amino anionic compound," as used herein, refers to a compound having an amino group (e.g., $-NR_aR_b$, in which R_a and R_b are each independently hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, alkylcarbonyl, arylcarbonyl, alkoxy carbonyl, or aryloxy carbonyl, or R_a and R_b taken together with the nitrogen atom to which they are attached, form a cyclic moiety having from 3 to 8 atoms in the ring) separated from an anionic group by a two-carbon spacer unit [that may be substituted with] any substituent of an alkyl group

Consistent with the above-quoted text, the chemical aspects of the methods claimed herein are defined in terms of these three elements: the "amino group," the "anionic group," and the "two-carbon spacer unit." As requested by Examiner Rao, independent claims 68, 138, and 142 have amended to recite these three elements. Specifically regarding the anionic group, claims 68, 138, and 142 define the anionic group as "a group that is negatively charged at physiological pH" and claims 143, 144, and 148 recite more specific anionic groups, which are all disclosed in the text quoted above. Regarding the amino group, claims 68, 138, and 142 define the amino group exactly as recited in the above-quoted text. The two-carbon spacer unit (itself an "alkyl group") may be substituted with any substituent that an alkyl group could otherwise have, as defined in the application as filed, at least at ¶15 of the *Detailed Description of the Invention*:

Moreover, the term alkyl as used throughout the specification and claims is intended to include both "unsubstituted alkyls" and "substituted alkyls", the latter of which refers to alkyl moieties having substituents replacing a hydrogen on one or more carbons of the hydrocarbon backbone. Such substituents can include, for example, halogen, hydroxyl, alkylcarbonyloxy, arylcarbonyloxy, alkoxy carbonyloxy, aryloxy carbonyloxy, carboxylate, alkylcarbonyl, alkoxy carbonyl, aminocarbonyl, alkylthiocarbonyl, alkoxyl, phosphate, phosphonate, phosphinato, cyano, amino (including alkyl amino, dialkylamino, arylamino, diarylamino, and alkylarylamino), acylamino (including alkylcarbonylamino, arylcarbonylamino, carbamoyl and ureido), amidino, imino, sulfhydryl, alkylthio, arylthio, thiocarboxylate, sulfates, sulfonate, sulfamoyl,

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sulfonamido, nitro, trifluoromethyl, cyano, azido, heterocyclyl, or an aromatic or heteroaromatic moiety.

Claims 68, 138, and 142 have been amended to define the substituents of the two-carbon spacer unit as they are disclosed in the above-quoted text. Dependent claims 146-147, 149, and 151-153, merely narrow the scope of the claims from which they depend; for example, the parenthetical examples of various types of amino and acyl amino groups are fully recited in dependent claims, as well as various substituted groups (support for which were explained in detail in Applicant's previous Amendment and Response). Claims 154-161 refer to certain substitution patterns of the substituents, and these various embodiments are specifically disclosed in the application as filed, at least at ¶38 of the *Detailed Description of the Invention*:

In another embodiment, the invention provides a method for inhibiting epileptogenesis. The method includes the step of administering to a subject in need thereof an effective amount of a compound selected from the group consisting of α,α -disubstituted β -alanines, α,β -disubstituted β -alanines, β,β -disubstituted β -alanines, α,β,α -trisubstituted β -alanines, α,β,β -trisubstituted β -alanines, and $\alpha,\alpha,\beta,\beta$ -tetrasubstituted β -alanines; or a pharmaceutically acceptable salt thereof, such that epileptogenesis is inhibited.

Claims 163-186 merely recite the compounds that are in Tables 1 and 2 of the application. Indeed, all of the claims are supported by the application as filed, and all of the claims pending after entry of the amendments requested herein are fully entitled to and supported by *at least* the parent application of this divisional application as filed on March 11, 1998.

Claim Rejections – 35 U.S.C. § 112 and § 102(b)

Claims 68-69, 78, 80, 92-93, and 138-142 stand rejected under 35 U.S.C. § 112, first paragraph. The outstanding Office Action states that the previous rejections under 35 U.S.C. § 112, second paragraph, have been withdrawn, and Applicants gratefully thank Examiner for this determination. However, the outstanding Office Action rejects claims under section 102(b) as being anticipated by the disclosure of Weaver, *et al.*, WO 98/40,055, which is

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the corresponding published PCT application having an identical disclosure to that of the present application. Because the present application and the cited reference are identical, the outstanding section 112, first paragraph rejection is inconsistent with the section 102(b) rejection. Accordingly Applicants respectfully request reconsideration. Applicants submit that the amended claims presented herein conform with the agreement reached during the aforementioned Interview, and therefore in view of these amendments the outstanding statutory rejections are believed to be moot.

Claim Rejections – Double Patenting

Certain of the pending claims stand rejected for obviousness-type double patenting over claims 18 and 19 of U.S. Patent No. 6,306,909 to Weaver, *et al.* (i.e., the parent of this divisional application). Upon a finding that the claims are otherwise in condition for allowance, Applicants will consider filing a Terminal Disclaimer as suggested in the instant Office Action. Indeed, Examiner is specifically invited to call the undersigned representative of Applicants to discuss such a Terminal Disclaimer at the appropriate time.

Examiner's Interview

Applicants and their representatives wish to sincerely thank Examiner Rao for the opportunity to discuss the present application for patent. As noted above, the present Amendment and Response is believed to be consistent with the agreement in principal on conditions for allowance of the pending claims. Applicants are most eager to advance the prosecution of this application. If any outstanding matters remain after entry and consideration of the present Amendment and Response, then Examiner is invited to contact the undersigned representative in order to resolve such issues expeditiously.

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CONCLUSION

A separate request for a one-month extension of time pursuant to 37 C.F.R. §1.136(a) is submitted concurrently herewith. Should any additional extension of time be required to enter this Amendment, or for any other purpose, then Applicants hereby request said extension of time and authorize the Commissioner to charge the appropriate fees to Deposit Account No. 12-0080. Also, please charge the fee of \$1396.00 for 62 excess claims to our Deposit Account No. 12-0080. If any additional fees are due, then please charge them to our Deposit Account No. 12-0080.

In view of the foregoing, entry of the amendments and remarks presented herein, favorable reconsideration and withdrawal of all the rejections, and allowance of the application with all pending claims are respectfully requested. If a telephone conversation with Applicants' representative would expedite the prosecution of the subject application, Examiner is urged to call the attorney of record at (617) 227-7400.

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